O005

2-hour Oral Session

Advancing hospital antibiotic stewardship

The effect of a smartphone application on antimicrobial prescribing trends – data from a multifaceted antimicrobial stewardship programme across three teaching hospitals

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Objectives Widespread sub-optimal use of broad-spectrum antimicrobials to treat infections in hospitals has contributed to the rise of antimicrobial resistance. Previous efforts to rationalise hospital antimicrobial prescribing have been multifaceted, and mHealth strategies have been trialled, but with little analyses of their effectiveness. We report a retrospective analysis of the effect of adding a smartphone clinical decision support system called the Imperial Antibiotic Prescribing App (IAPP) to an established multifaceted antimicrobial programme across a network of three university hospitals with shared overarching policies and management structure in West London (1300 beds total).

Methods At the time of the implementation of the IAPP the stewardship programme already operating at the three study hospitals included: 1) provision of a pocket guide of the hospitals' antimicrobial prescribing policy to clinicians; 2) a programme of weekly audit and feedback of antimicrobial prescribing using key quality indicators of adherence to policy and documentation of the indication ; 3) pharmacy led antimicrobial stewardship ward rounds; 4) biannual pan-network point prevalence study (PPS). In August 2011, the pocket guide was converted into the IAPP by a multidisciplinary team of clinicians and was disseminated to all junior doctors. Based on clinical updates to the policy and user feedback the IAPP was updated every six months. The PPS data was used as a proxy indicator for any observed changes in antimicrobial prescribing trends during the period before and after the addition of the IAPP to the stewardship programme. The PPS data was statistically analysed using STATA. Linear regression models were used to detect trends in the proportions of prescriptions with a) compliance to policy, b) documentation of indication for the antimicrobials and c) documentation of a stop and review date.

Results In both medicine and surgery significant improvements were observed since the launch of the IAPP. From November 2010 to January 2014: 1) in medicine the percentage of antimicrobials prescribed in line with policy increased from 82% to 91% in (p=0.015, CI=0.00092-0.0067); 2) in surgery the percentage of antimicrobials prescribed in line with policy increased from 21% to 57% (p=0.003, CI=0.0041-0.015); 3) the percentage of antimicrobials that were within duration increased from 24% to 71% (p=0.004, CI=0.0022-0.056) in medicine, and from 21% to 57% (p=0.038, CI=0.0022-0.056) in surgery. No significant improvement was observed for the documentation of antimicrobial indication.

Conclusion The addition of the IAPP has had a positive effect on two of the three proxy indicators used to measure the trend of antibiotic prescribing. Adoption of mobile health technology to deliver a clinical decision support system for antimicrobial prescribing can be a sustainable and pragmatic component of a multifaceted antimicrobial stewardship programme in secondary care.